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EXAMINER

NG, CHRISTINE Y

ART UNIT PAPER NUMBER

2663

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/816,652

Applicant(s)

AIRY ET AL.

Examiner

Christine Ng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 13-20, 25-32 and 37-41 is/are rejected.
- 7) ☐ Claim(s) 9-12, 21-24 and 33-36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "the first service class" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-6, 8, 13-18, 20, 25-30, 32 and 37-41 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,738,363 to Best et al.

Referring to claims 1 and 13, Best et al disclose in Figure 3 a system for scheduling information in a multiple antenna wireless cellular network, the wireless cellular network comprising a base transceiver station (BSS 304) and a plurality of subscriber units (MS 310) wherein each of the plurality of subscriber units (MS 310)

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belongs to a service class (ongoing/new CBR/non-CBR). Refer to Column 7, lines 14-24 and Column 9, line 21-40. The system comprises:

Means (through BSS 304) for receiving a service flow request (resource request) from a subscriber unit (MS 310). Refer to Column 8, lines 39-42.

Means (through MSC 306) for determining the service class (ongoing/new CBR/non-CBR) of the subscriber unit (MS 310). Refer to Column 8, lines 42-46 and Column 9, line 21-40.

Means (through MSC 306) for scheduling time slots and frequency blocks within a communication channel (Figures 8A-8C, 11 and 13) for the service flow request (resource request) based, at least in part, on the service class (ongoing/new CBR/non-CBR) of the subscriber unit (MS 310). Refer to Column 8, lines 49-56 and Column 9, line 21-40.

Referring to claim 25, refer to the rejection of claims 1 and 13. Furthermore, Best et al disclose that the method can be performed by a computer readable medium containing program instructions. Refer to Column 7, lines 37-43 and Column 8, lines 17-22.

Referring to claim 37, Best et al disclose in Figure 3 a scheduler (MSC 306) for scheduling information in a multiple antenna wireless cellular network, the wireless cellular network comprising a base transceiver station (BSS 304) and a plurality of subscriber units (MS 310) wherein each of the plurality of subscriber units (MS 310) belongs to a service class (ongoing/new CBR/non-CBR). Refer to Column 7, lines 14-24 and Column 9, line 21-40. The scheduler comprises:

A buffer (resource request queue) for receiving a service flow request (resource request) from a subscriber unit (MS 310). Refer to Column 8, lines 43-46.

A processor (processing unit) for determining the service class (ongoing/new CBR/non-CBR) of the subscriber unit (MS 310) and scheduling time slots and frequency blocks within a communication channel (Figures 8A-8C, 11 and 13) for the service flow request (resource request) based, at least in part, on the service class (ongoing/new CBR/non-CBR) of the subscriber unit (MS 310). Refer to Column 7, lines 32-36; Column 8, lines 49-56 and Column 9, line 21-40.

Referring to claims 2, 14, 26 and 38, Best et al disclose in Figures 5 and 6 that the service class (ongoing/new CBR/non-CBR) comprises a priority ranking. The services classes are allocated time/frequency channels in the prioritized order of: ongoing CBR connections (Steps 508 or 608), ongoing non-CBR connections (Steps 510 or 609A), new CBR connections (Steps 511 or 609B), and then new non-CBR connections in order of increasing size of request or decreasing size of unit revenue (Steps 512 or 610). Refer to Column 9, lines 21-61 and Column 10, lines 45-67.

Referring to claims 3, 15, 27 and 39, Best et al disclose that scheduling time slots and frequency blocks (Figures 8A-8C, 11 and 13) for the service flow request (resource request) based on the service class (ongoing/new CBR/non-CBR) of the subscriber unit (MS 310) further comprises: means (MSC 306) for scheduling time slots and frequency blocks (Figures 8A-8C, 11 and 13) for the service flow request (resource request) based on the service class (ongoing/new CBR/non-CBR) and the priority ranking of the subscriber unit (MS 310). Refer to the rejections of claims 2, 14, 26 and 38.

Referring to claims 4, 16, 28 and 40, Best et al disclose that the service class (ongoing/new CBR/non-CBR) comprises more than one service class and the means for scheduling time slots and frequency blocks (Figures 8A-8C, 11 and 13) for the service flow request (resource request) based on the service class (ongoing/new CBR/non-CBR) of the subscriber unit (MS 310) further comprises: means for (MSC 306) utilizing a different algorithm to schedule the time slots and frequency blocks (ongoing/new CBR/non-CBR) for each service class (ongoing/new CBR/non-CBR). Ongoing CBR subscribers are allocated the same communication channels currently granted; ongoing non-CBR subscribers are compacted into contiguous communication channel slots at the end of the communication channel allocation table; new CBR connections are packed in between the ongoing CBR and non-CBR subscribers; and the new non-CBR connections are allocated according to increasing size of request or decreasing size of unit revenue. Refer to Column 9, lines 21-61; Column 10, lines 45-67 and Figures 8A-8C, 11 and 13.

Referring to claims 5, 17 and 29, Best et al disclose that the system further comprises means (MSC 306) for utilizing a first algorithm (allocating to ongoing CBR subscribers the same communication channels currently granted) to schedule time slots and frequency blocks (Figures 8A-8B) for a first service class (ongoing CBR). Refer to Column 12, lines 12-44.

Referring to claims 6, 18 and 30, Best et al disclose in Figures 10-13 that utilizing the first algorithm (allocating to ongoing CBR subscribers the same communication

channels currently granted) to schedule time slots and frequency blocks (Figures 8A-8B) for the first service class (ongoing CBR) comprises:

Means (MSC 306) for creating a node tree (Figures 8A-8B, resource allocation table RAT). Refer to Column 12, lines 12-44.

Means (MSC 306) for implementing the first algorithm (allocating to ongoing CBR subscribers the same communication channels currently granted) via the node tree (Figures 8A-8B, RAT). Ongoing CBR subscribers are assigned the same communication channels in the new RAT (Figure 8B, range 802) as in the prior RAT (Figure 8A). Refer to Column 12, lines 12-44.

Referring to claims 8, 20 and 32, Best et al disclose that the system further comprises means (MSC 306) for utilizing a second algorithm (allocating to ongoing non-CBR subscribers contiguous communication channels at the end of the RAT) to schedule time slots and frequency blocks (Figures 8A-8B) for a second service class (ongoing non-CBR). Ongoing non-CBR subscribers are assigned contiguous communication channels at the end of the new RAT (Figure 8B, range 810). Refer to Column 12, lines 45-58.

Referring to claim 41, refer to the rejection of claims 5, 17 and 29 and the rejection of claims 8, 20 and 32.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7, 19 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,738,363 to Best et al in view of U.S. Patent No. 6,690,678 to Basso et al.

Best et al does not specifically disclose that the first service class (ongoing CBR) comprises subscriber units (MS 310) requiring a guaranteed real-time data rate.

Basso et al disclose that CBR is a service category that supports real-time applications such as uncompressed voice and highest priority applications. The bandwidth for CBR is reserved and guaranteed regardless of the network load conditions. Refer to Column 1, lines 31-41 and Column 8, lines 39-61. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the first service class (ongoing CBR) comprises subscriber units (MS 310) requiring a guaranteed real-time data rate; the motivation being that CBR is a service class that guarantees reserved bandwidth to real-time applications.

Allowable Subject Matter

7. Claims 9-12, 21-24 and 33-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments filed March 1, 2005 have been fully considered but they are not persuasive.

Referring to the argument of independent claims 1, 13, 25 and 37 that Best et al

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fails to anticipate or suggest scheduling time slots and frequency blocks within a communication channel for the service flow request (page 10, lines 9-16), refer to Best et al, Figures 3, 8A-8C, 11 and 13. In Figure 3, the MSC 306 schedules time slots and frequency blocks within a communication channel (Figures 8A-8C, 11 and 13) for the service flow request (resource request) based, at least in part, on the service class (ongoing/new CBR/non-CBR) of the subscriber unit (MS 310). Refer to Column 8, lines 49-56 and Column 9, line 21-40. Ongoing CBR subscribers are granted the same communication channels currently granted. Ongoing non-CBR subscribers are compacted into contiguous communication channel slots and positioned at the end of the communication channel. New CBR subscribers are positioned between the ongoing CBR subscribers and the ongoing non-CBR subscribers. New non-CBR connections are given the remaining slots. Although Best et al disclose that a communication channel is explicitly defined as a given frequency, Best et al also disclose that in Figures 8A-8C, 11 and 13, a communication channel consists of frequencies F1-F4, each divided into time slots t1-t16 for transmitting data. Refer to Column 11, lines 11-19. This reads on the claimed limitation "scheduling time slot and frequency blocks within a communication channel for the service flow request...". The communication channel is made up of frequencies F1-F4, each divided into time slots t1-t16.

Applicant's arguments, see page 11, line 3 to page 12, line 8, filed November 29, 2005, with respect to the rejection(s) of claim(s) 7, 19 and 31 under 35 USC § 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

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However, upon further consideration, a new ground(s) of rejection is made in view of different interpretation of the previously applied reference.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (571) 272-3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Ng ^{en}
February 8, 2006



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